

LIST OF FISHES OBSERVED IN THE SAINT JOHN'S RIVER AT JACKSONVILLE, FLORIDA.

By DAVID S. JORDAN and SETH E. MEEK.

One day in the month of November, 1883, was spent by Professor Jordan at Jacksonville, Fla., in a study of the fishes of the markets. The following is a list of the species seen. The *Cyprinodontidae* were taken from a small brook south of the town, a few of the others were caught with a hook from the wharves, while the others were seen in the markets, whither they had been brought from the mouth of the river. Only the *Ictalurus* and the *Cyprinodontidae* were preserved. These are in the National Museum.

1. *Ictalurus niveiventris* (Cope) Jordan & Gilbert.

One specimen $12\frac{1}{2}$ inches in length taken with a hook on the wharf. Head $3\frac{2}{3}$ in length; width of head $4\frac{3}{4}$ in length; eye 4 in interorbital area; origin of dorsal scarcely nearer end of snout than adipose fin; length of dorsal spine 3 in distance from tip of snout to root of spine; upper jaw projecting slightly beyond lower; maxillary barbels scarcely reaching gill-openings; pectoral spine large, retrorse-serrate on its inner edge; humeral process more than half the length of pectoral spine, very rugose; anal shorter than head, its longest ray 2 in base of fin; caudal weakly forked, its inner rays about $1\frac{2}{5}$ in outer ones, lower lobe broader than upper; adipose fin large. This fish differs but slightly from Cope's description (Proc. Amer. Phil. Soc., 1870, 486). Hitherto only the original type had been known, from the Neuse River, in North Carolina.

2. *Gambusia patruelis* (Baird & Girard) Girard.

Numerous specimens, the largest $2\frac{1}{10}$ inches in length, taken from a small bank near Jacksonville. At this season (November) the young are undeveloped in the ovaries. The characters noticed by Jordan & Gilbert (Proc. U. S. Nat. Mus., V, 1882, 257) as separating *Gambusia patruelis*, from *Gambusia holbrooki*, do not seem constant in these specimens. The head varies from about $3\frac{3}{5}$ to $3\frac{7}{8}$ in length of body, and the eye from $1\frac{1}{2}$ to $1\frac{3}{4}$ in length of head. Sufficient variation will no doubt be found to exist in specimens taken from different streams to render it necessary to regard *G. holbrooki* as fully identical with *G. patruelis*. The dark cross-streaks on the caudal are sharply defined, especially in the larger specimens, which are the largest of this species yet seen by us.

3. *Mollienesis latipinna* Le Sueur.

Seven specimens, females 5, males 2; the largest a female 2.1 inches in length; dorsal rays 13; its insertion behind a vertical from root of ventrals, more notably so in female specimens; eye about $2\frac{7}{8}$ in head,

and $1\frac{3}{5}$ in interorbital width; no dark vertical half-bars noticeable on the sides of these specimens. These specimens are therefore intermediate between *Mollienesia latipinna* and *Mollienesia lineolata*, as characterized by Jordan & Gilbert (Proc. U. S. Nat. Mus., V, 1882, 258-260). Doubtless these differences noted are mere local variations in specimens from different waters.

4. *Heterandria formosa* Agassiz.

Head $3\frac{1}{2}$ to $3\frac{2}{3}$ in length; depth, $3\frac{3}{4}$ to 4; D., 7; A., 8 or 9; scales in lateral line, 28. Body short, slightly compressed. Snout very short, about two-thirds eye. Eye large, 3 in head. Mouth terminal, slightly oblique. Lower jaw slightly projecting. Jaws each with a series of small, pointed, movable teeth. Gill membranes united. Dorsal fin short, on posterior part of body; its origin above, on a vertical, from middle of anal, and about midway between end of snout and tip of caudal fin. In male specimens the anal is considerably in advance of dorsal, and is transformed into an intromittent organ. Caudal fin rather long, about 5 in body, slightly dusky at its tip.

Color in spirits brownish-olive. A dark band about as wide as eye extends from mouth through eye and along middle of the side, terminating in a black spot at base of caudal. This band is crossed with from 6 to 9 brownish-black vertical streaks which become fainter with age, the anterior ones the less prominent. These markings are made up of small dark dots; 6 black spots on base of dorsal and anal fins.

Description from about 30 specimens, both sexes represented, taken from a small brook near Jacksonville. The largest is 0.9 inch in length. The genus *Heterandria* was proposed by Agassiz (Amer. Journ. Sci. Arts, XVI, 135) in 1853 to include certain Cyprinodonts which have the anal fin in the male modified. The two species mentioned, *holbrooki* and *formosa*, belong to different genera, which correspond respectively to Poey's *Gambusia* and *Girardinus*. These occur in the *Memorias sobre la Historia Natural de la Isla de Cuba* (I, p. 390). The date assigned to their appearance by Girard (Proc. Ac. Nat. Sci., Phila., 1859-'61) is the year 1851, which would give both two years priority over *Heterandria*. Günther and Jordan & Gilbert have accepted this date without challenge. It is, in fact, the date given on the title page of the *Memorias*, but the volume was issued in parts, its publication extending over several years, and the issue of the part containing *Girardinus* and *Gambusia* could not have been earlier than 1855. This is evident, as papers written in 1854 are printed in the text before it.

In place either of *Gambusia* or *Girardinus* the name *Heterandria* must therefore be used. It has not yet been restricted to either so far as we know. We therefore propose to restrict it to the type of *Girardinus*, regarding *Heterandria formosa*, Agassiz as its type. This arrangement is in accordance with the wishes of Professor Poey, to whom we

are indebted for the information that his *Girardinus* is subsequent to *Heterandria*.

5. *Mugil albula* (Linnaeus). *Mullet*.

Very abundant; full of ripe spawn. November 20.

6. *Lepomis pallidus* (Mitch.) Gill & Jordan. *Brim*.

7. *Lepomis holbrooki* (Cuv. & Val.) McKay. *Brim*.

8. *Pomadasys chrysopterus* (Linn.) Goode & Bean. *Hog fish*.

9. *Diplodus probatocephalus* (Walb.) Jordan & Gilbert. *Sheep's-head*.

10. *Pogonias chromis* (L., Cuv. & Val.)

11. *Sciaena ocellata* (L.) Günther. *Red Bass*.

12. *Liostomus xanthurus* La Cépède.

13. *Micropogon undulatus* (L.) Cuv. & Val. *Croaker*.

14. *Menticirrus alburnus* (L.) Gill. *Whiting*.

15. *Cynoscion maculatum* (Mitchill) Gill. *Trout*.

16. *Paralichthys lethostigma* Jordan & Gilbert MSS. (nom. sp. nov.).

(*Paralichthys dentatus* Jor. & Gilb. Syn. Fish N. A., 822, not *Pleuronectes dentatus* L. fide Bean.*)

NOTES ON THE PIPE-FISHES OF KEY WEST, FLORIDA, WITH DESCRIPTION OF *Siphostoma McKayi*, A NEW SPECIES.

By JOSEPH SWAIN AND SETH E. MEEK.

The collection of pipe-fishes upon which this paper is based was obtained by Professor Jordan at Key West, Fla., during his recent visit to that place. Besides the single species, which is apparently new to science, we find in this collection all the species, except *Siphostoma fuscum*, hitherto known from the Atlantic coast of the United States.

We wish to express our indebtedness to Professor Jordan for the use of his library and for kindly aid.

The synonymy of the different species has been already published by Mr. Swain (Proc. U. S. Nat. Mus., 1882, 307-315), and the National Museum has specimens of all the species here recorded.

Analysis of species of the genus *Siphostoma*, found in the United States.

a. Top of head strongly carinated.

b. Breast shields not covered by soft skin; opercle with a prominent ridge; snout short; D. 22 or 23, covering 1 + 4 rings; rings, 18 + 30; belly concave; twelve irregular brown cross-bars on body. (*Corythoichthys* Kaup.). ZATROPIIS, 1

bb. Breast shields covered by soft skin; D. 41; rings, 19 + 39. (*Dermatostethus* Gill.) PUNCTIPINNE, 2

* Dr. Bean, who has examined the Linnaean type of this species, now preserved in London, identifies it with the species called *P. ophryus* or *P. ocellaris* by Jordan & Gilbert.